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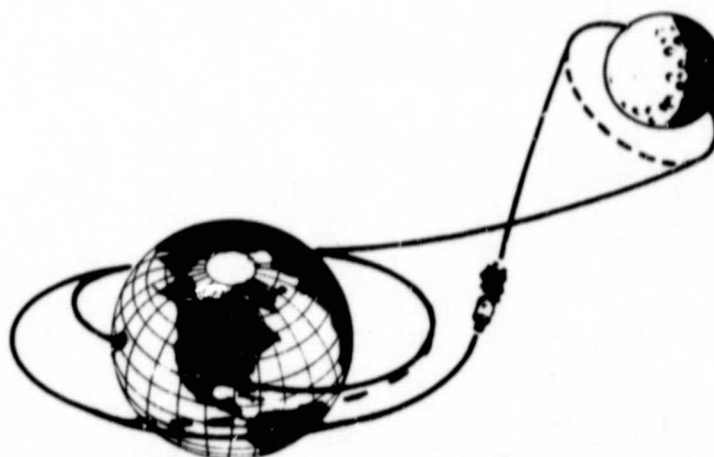
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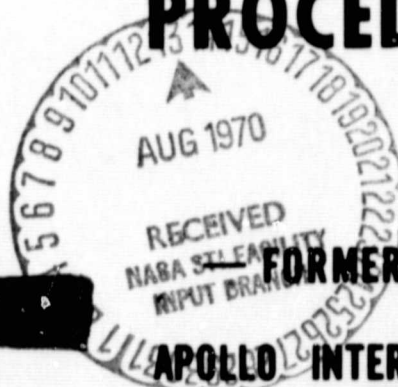
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CM-001-001-1B
JANUARY 1969



APOLLO INTER-CENTER ICD MANAGEMENT PROCEDURE



APOLLO INTER-CENTER
INTERFACE CONTROL
REPOSITORY OPERATIONS

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APOLLO PROGRAM

APOLLO
INTERCENTER
ICD
MANAGEMENT
PROCEDURE

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FOREWORD

This document has been prepared to provide standard methods for implementing inter-Center interface management within the Apollo program in accordance with APO Apollo Program Directive (APD) 47 dated December 16, 1968. The essential purpose is to apply the concepts of configuration management to the identification, control, and accounting of interface control documents. It is with this intent in mind that the Apollo inter-Center ICD Management Procedure has been developed and is detailed in this document.

It is planned that this document will be updated, periodically, such that the information presented may be used on a continuous basis throughout the life of the Apollo program as the authoritative reference in matters for inter-Center ICD management.

TABLE OF CONTENTS

SECTION	TITLE	PAGE NO.
1.0	PURPOSE	1
2.0	SCOPE	1
3.0	POLICY.	1
3.1	Inter-Center Interface Management .	1
3.2	Interface Control Documentation . .	1
3.3	Repository.	2
4.0	RESPONSIBILITIES.	2
4.1	Center Apollo Program Managers. . .	2
4.2	Apollo Inter-Center Interface Panels	2
4.3	Center Apollo Program Offices . . .	2
4.4	Center Apollo Configuration Control Boards (CCB's)	2
4.5	Repository.	3
5.0	INTERFACE CONTROL DOCUMENTATION . .	3
5.1	Definition.	3
5.2	ICD and IRN Content	3
5.3	ICD and IRN Guidelines.	4
5.4	Criteria for Transfer of ICD's to AAP.	5
5.5	ICD/IRN Flow.	6
6.0	REPOSITORY.	9
6.1	Purpose.. . . .	9
6.2	Repository Management	9
6.3	Location.	11
6.4	Repository Operations	11
7.0	RECISSION	12
Appendix 1	Instructions for Preparing the ICD Log and Repository Input Form . . 1 thru 6	
Appendix 2	Instructions for Processing an ICD, Revised ICD, and IRN. 1 thru 6	
Appendix 3	Instructions for Preparing an Interface Revision Notice (IRN) . 1 thru 5	

1.0 PURPOSE

This document defines and details the Apollo Program inter-Center interface management procedures and the operation of a repository for Apollo inter-Center Interface Control Documents (ICD's) and Interface Revision Notices (IRN's). This document is not applicable to intra-Center interface activities.

2.0 SCOPE

The Apollo inter-Center ICD Management Procedure is applicable to all NASA Center organizations involved in the identification, development, and control of Apollo inter-Center ICD's and IRN's.

2.1 APPLICABLE DOCUMENTS

APD 47	Apollo inter-Center Interface Management
NPC 500-1	Apollo Configuration Management Manual
MIL-D-1000	Drawings Engineering and Associated Lists

3.0 POLICY

APD 47 provides for the inter-Center interface management system. Inherent in such a system are requirements to identify, develop, implement, and file the documentation necessary to assure positive control of inter-Center hardware and software interfaces.

3.1 INTER-CENTER INTERFACE MANAGEMENT

Inter-Center interface management is the joint responsibility of the Center Apollo Program Managers subject to direction and guidance from the Director, Apollo Program. The Apollo inter-Center interface panel organization, as established by Apollo Program Directive APD 47 shall be utilized to define and control inter-Center interfaces and resolve related technical interface problems.

3.2 INTERFACE CONTROL DOCUMENTATION

ICD's and IRN's shall be the documentation form by which Apollo inter-Center interfaces and changes thereto are defined, agreed to, and controlled.

3.3 REPOSITORY

The existing Repository function, provided for the Apollo Program by the Marshall Space Flight Center (MSFC) shall be utilized to provide an Apollo ICD and IRN storage and control function to the extent prescribed by this document.

4.0 RESPONSIBILITIES

4.1 CENTER APOLLO PROGRAM MANAGERS

The Center Apollo Program Managers shall be responsible for implementation and maintenance of an inter-Center interface management program at their Centers and with their Contractors in accordance with the procedures outlined herein.

4.2 APOLLO INTER-CENTER INTERFACE PANELS

The panels shall be responsible for the technical definition, coordination and documentation of the inter-Center interfaces and the resolution of related problems in accordance with their charters as described in APD 47.

4.3 CENTER APOLLO PROGRAM OFFICES

Center Apollo Program Offices shall be responsible for providing program impact assessment on ICD's and IRN's resulting from engineering changes. Inter-Center interfaces, as defined by the Apollo panels, constitute technical recommendations to the Program Manager which require program review and approval prior to implementation.

4.4 CENTER APOLLO CONFIGURATION CONTROL BOARDS (CCB's)

As required by the NASA Apollo Configuration Management Manual, NPC 500-1, issued by the Apollo Program Director, each Center Apollo Program Manager shall be responsible for establishing a Center Apollo configuration management activity, including a CCB. Prime among the CCB responsibilities shall be the validating of, accounting for, and documenting of decisions pertinent to inter-Center ICD's. Each Center shall formalize each decision involving an inter-Center ICD by the issuance of a Configuration Control Board Directive (CCBD). The CCBD numbers displayed on each ICD/IRN shall be indicative of each Center's action.

4.5 REPOSITORY

The Repository shall be responsible for receiving, recording, reproducing, distributing, retrieving, and storing CCB approved/disapproved ICD's/IRN's.

5.0 INTERFACE CONTROL DOCUMENTATION

5.1 DEFINITIONS

5.1.1 INTERFACE

A region common to two or more elements, systems, projects, or programs, and characterized by mutual physical, functional, environmental, operational and/or procedural properties.

5.1.2 INTERFACE CONTROL DOCUMENT (ICD)

An ICD details inter-Center interface agreements. It is controlled, in that, once agreement is reached by the Centers, changes to the interface cannot be unilaterally made by any one Center.

5.1.3 INTERFACE REVISION NOTICE (IRN)

A document detailing a change to an ICD.

5.2 ICD AND IRN CONTENT

5.2.1 INFORMATION REQUIRED IN AN ICD

- (a) Design criteria and requirements which establish hardware and software interface configuration, describing the parameters and constraints under which the hardware and software shall function.
- (b) Physical and functional design details and operational and procedural requirements, the changing of which shall impact on hardware or software, performance, cost, or schedule accomplishment.

5.2.2 INFORMATION NOT REQUIRED IN AN ICD

Requirements that:

- (a) by nature of their iterative variations shall not make control between Centers practical or necessary,
- (b) shall be the sole responsibility of a single Center,
- (c) are set forth in documents such as Test Specifications and Criteria.

5.2.3 INFORMATION REQUIRED IN AN IRN

Identical to that of an ICD with the same content inclusions and exclusions.

5.2.4 TYPES OF INTERFACES

- (a) Physical - Those interfaces involving the form or fit between interconnecting parts or assembly of parts. Included shall be clearance envelopes used to avoid interference and to provide for access.
- (b) Functional - Those interfaces involving specific system design parameters including structural loads, fluid flows, and electrical circuit signal characteristics.
- (c) Environmental - Those interfaces involving the interaction or influence of conditions imposed by one system or component upon another, or from external sources, such as shock, vibration, heat transfer, or electromagnetic interference.
- (d) Operational and Procedural - Those interfaces involving the sequence of events occurring in the assembly, alignment, service, maintenance, test or operation of related systems, hardware, and software.

5.2.5 ICD/IRN QUALITY PROVISIONS

The quality provisions of MIL-D-1000 or equivalent, shall be implemented to assure document reproducibility, including microfilming.

5.3 ICD AND IRN GUIDELINES

- 5.3.1 ICD's and IRN's unique to the Apollo Program shall be titled, numbered, and technically approved by the cognizant Apollo panel and processed into the Apollo Program in accordance with Apollo Program procedures.
- 5.3.2 IRN's shall be individually identified, maintained, and controlled until the changes they represent have been incorporated into a revised ICD. An ICD shall be revised periodically to incorporate outstanding approved IRN's. In no case shall an ICD have more than six (6) approved IRN's outstanding against it. ICD revisions shall only contain those changes defined in approved IRN's. ICD revisions shall be identified in alphabetical sequence.
- 5.3.3 IRN's shall not be altered after approval by the Center CCB's. There shall be no letter revisions for updating IRN's. The content of an approved IRN shall be modified only as follows:
 - (a) Effectivity Change - Submit a new IRN listing

the effectivity changes in accordance with the instructions of Appendix 3 for utilizing blocks 14, 15, and 16 of the IRN form.

- (b) Content Other Than Effectivity - Submit a new IRN which completely supersedes the IRN being replaced.

5.3.4 IRN's shall be identified by the letter "R" and in numerical sequence, i.e., R1, or R2, or R3, etc., by the panel having cognizance over the affected ICD. Should an involved organization have a need to assign a tracking number to any IRN, the tracking number shall be as deemed appropriate to that organization's internal requirements.

5.4 CRITERIA FOR TRANSFER OF ICD'S TO AAP

5.4.1 Certain Apollo Program ICD's and IRN's may be applicable to the AAP. These ICD's and IRN's shall remain under the control of the Apollo Program as long as they describe interfaces essential to the accomplishment of the Apollo Program. However, when these ICD's and IRN's are no longer essential to the accomplishment of the Apollo Program but are essential to the AAP, they shall come under the control of the AAP. Recognizing this transitional responsibility, the following guidelines shall be adhered to:

5.4.2 IDENTIFICATION OF APOLLO ICD'S FOR USE BY AAP

Apollo ICD's and IRN's applicable to the AAP shall continue to be identified by the Apollo title and number. Apollo ICD's shall be identified for use by AAP, by processing an IRN through the Apollo intercenter panels and Apollo Program offices stating that the ICD is applicable to AAP for specific effectivities.

5.4.3 PRIOR TO TRANSFER OF RESPONSIBILITY FOR HARDWARE AND FACILITIES

AAP approved IRN's to Apollo ICD's documenting proposed changes to Apollo hardware and facilities prior to transfer of both hardware and facilities from Apollo to Apollo Applications shall be processed through Apollo Inter-Center Panels into the Apollo Program in accordance with Apollo procedures. Upon approval by the Apollo Program, they shall become part of both the Apollo and Apollo Applications Program interface documentation. In keeping with the relative priorities of the two programs it must be recognized that AAP proposed changes are subject to approval/disapproval contingent upon their impact on the Apollo Program.

5.4.4 TRANSFER OF RESPONSIBILITY FOR EITHER HARDWARE OR FACILITIES

AAP approved IRN's to Apollo controlled ICD's documenting proposed changes to Apollo hardware and facilities subsequent to the transfer of one or the other but prior to the transfer of both the hardware and facilities from Apollo to Apollo Applications shall be processed through Apollo inter-Center panels into the Apollo Program in accordance with Apollo procedures. IRN's which affect only that hardware or facility transferred to and solely under the control of the AAP shall be processed through AAP panels in accordance with AAP procedures.

5.4.5 TRANSFER OF RESPONSIBILITY FOR BOTH HARDWARE AND FACILITIES

Apollo developed ICD's, no longer appropriate to Apollo Program control because of the transfer to the Apollo Applications Program of the involved hardware and facilities, but valid in other descriptions of AAP inter-Center interfaces, shall be maintained under the cognizance of the appropriate AAP panel.

5.5 ICD/IRN Flow

5.5.1 TYPICAL APOLLO ICD AND IRN FLOW (FIGURE 1)

This typical flow can be modified by mutual agreement between Centers.

5.5.1.1 ESTABLISHING THE REQUIREMENT

Although any involved Center, contractor, or individual may propose the development of an ICD or a change to an ICD, it shall be the responsibility of the appropriate panel to establish and validate the requirement in accordance with the engineering change.

5.5.1.2 DEVELOPING THE ICD/IRN

Subsequent to establishing the requirement, it shall be the responsibility of the involved panel to define, detail, coordinate, and schedule completion of the ICD/IRN to support program milestones. Panel approval shall be indicated by concurrence signatures of the panel co-chairman and senior member as appropriate.

5.5.1.3 SUBMITTAL OF THE ICD FOR PROGRAM APPROVAL

When agreement is reached by appropriate panel Co-Chairman and Senior Members, the ICD/IRN shall be submitted by the panel to the involved Center Program Offices for action. The procedure for submittal is detailed in Appendix 2.

TYPICAL APOLLO ICD/IRN FLOW

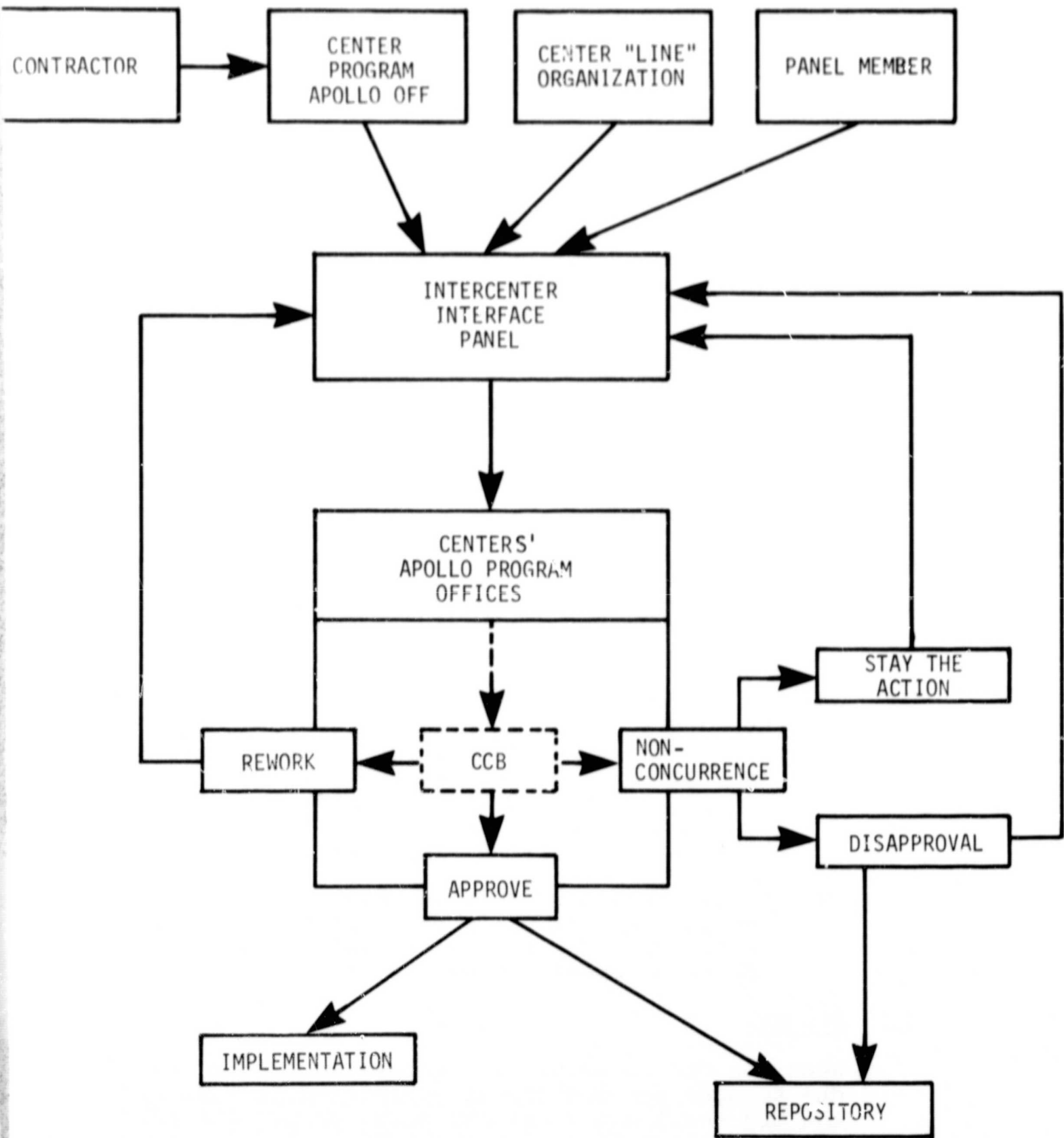


FIGURE 1

5.5.1.4 PROGRAM OFFICE ACTION

The Apollo Center Program Office shall assess ICD's/IRN's to determine Center program impact, and present findings and recommendations to the Center CCB for approval, non-concurrence, or rework. The Program Offices shall assure that one of the following actions is accomplished within fifteen working days of receipt of a properly submitted ICD or IRN package.

- (a) Approval - Center program approval of ICD's and IRN's shall be accomplished by the issuance of CCB Directives by each involved Center. The CCBD numbers shall be placed on the ICD and IRN reproducible master and Input Form (MSFC Form 2053) where required in the instructions of Appendix 1. The reproducible master and Input Form, if applicable, shall then be forwarded to: Propulsion and Vehicle Engineering Laboratory, George C. Marshall Space Flight Center, Huntsville, Alabama, 35812, Attention: R-P&VE-VSD.
- (b) Non-concurrence
 - (1) Should a Center CCB stay the action (delay the decision) on an ICD or IRN, written notification of such action shall be made to other involved Centers and the originating panel.
 - (2) In the event all affected Center CCB's agree to "disapprove" a proposed ICD or IRN, CCBD's shall be issued indicating disapproval. A "disapproval notation" for IRN tracking purposes shall be reflected in the ICD log.
 - (3) ICD's/IRN's which have been disapproved shall be marked by the responsible Center CCB in bold letters across the face of the document, as follows: "Disapproved, date, CCBD No. _____", and forwarded to the Repository for record file only. The affected panel shall be notified of the disapproval.
 - (4) Refer any ICD's/IRN's on which one or both Center Level II CCB's disagree to the Apollo Level I CCB for resolution in accordance with the requirements of NPC 500-1.

- (c) Rework

When the CCB is unable to process an ICD or IRN due to need for additional definition or rework, the CCB shall not alter but shall return the ICD/IRN to the originating panel with instructions detailing the additional information, rework, or coordination desired.

5.5.1.5 IMPLEMENTATION OF THE ICD/IRN

Each Center, in accordance with its own operating procedures, shall assure the approved ICD/IRN is implemented.

5.5.1.6 REPOSITORY ACTION

Upon receipt of the approved or disapproved ICD/IRN from the responsible Center, the Repository shall log, reproduce, distribute, and store the document as appropriate. Distribution shall be made in accordance with distribution lists provided by the Center for each ICD.

5.5.2 TYPICAL AAP IRN FLOW AFFECTING APOLLO ICD's AND IRN's (FIGURE 2)

AAP changes affecting both the Apollo and AAP programs shall be processed according to Figure 2. The step by step process detailed by sub-paragraphs of 5.4.1 shall be followed except that coordination between groups at each end will be effected as required.

6.0 REPOSITORY

6.1 PURPOSE

The Apollo Repository is established as a service to all Centers involved in the Apollo ICD activity. In this capacity it shall:

- 6.1.1 Receive, record, reproduce, distribute, and store ICD's and IRN's.
- 6.1.2 Assure no alterations are made to documentation in file. Changes to the documentation shall be in accordance with Appendix 3.
- 6.1.3 Issue and maintain Apollo Interface Control Document Log(s) and status reports as deemed necessary by the involved Centers and APO.

6.2 REPOSITORY MANAGEMENT

- 6.2.1 An Apollo Repository Manager shall be assigned by the MSFC and shall be responsible for the accomplishment of those functions stipulated in paragraph 6.2.
- 6.2.2 In conjunction with the Executive Secretariat, the Repository Manager shall:
 - (a) Establish and maintain working and reporting procedures appropriate to Repository functioning in support of the Centers.

TYPICAL AAP IRN FLOW AFFECTING APOLLO ICD'S AND IRN'S UNDER APOLLO CONTROL

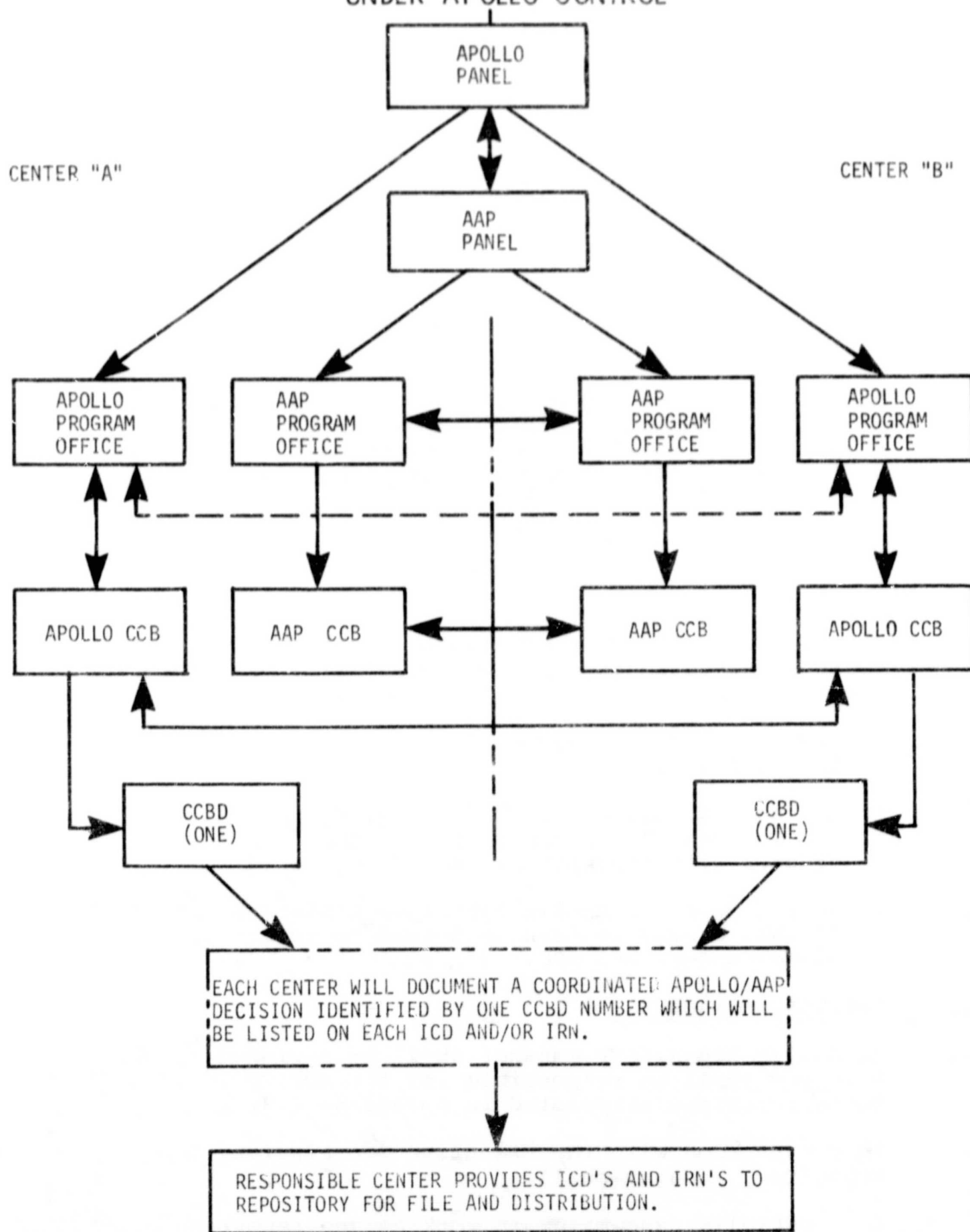


FIGURE 2

- (b) Identify and recommend solutions to problems in Repository operations.

6.3 LOCATION

A central Repository for Apollo ICD's shall be maintained at the Marshall Space Flight Center.

6.4 REPOSITORY OPERATIONS

- 6.4.1 The Repository shall receive and process only those Apollo ICD's and IRN's which have a coordinated inter-Center program approval/disapproval as reflected by CCBD numbers appropriately entered on the document.
- 6.4.2 Submittal of ICD's to the Repository shall be made through the use of an "Interface Control Document Log and Repository Input Form" (MSFC Form 2053, Rev. Apr. '68). See Appendix 1 for instructions in the proper execution of the form. The input form is not required for the submittal of an IRN.

ICD's or IRN's submitted to the Repository that are of such poor quality to preclude use of microfilming or other reproduction shall not be accepted. Should a document be rejected because of its unacceptable quality, it shall be returned to the responsible Center. It is the responsibility of the responsible Center to obtain a document of acceptable quality and resubmit to the Repository. Documents that have been rejected shall be listed in the log; however, they shall be statused with the notation that they are unavailable from the Repository.

6.4.3 ICD LOGS AND SPECIAL REPORTS

- (a) An Apollo Interface Control Document Log (ICDL) shall be compiled listing all Apollo inter-Center ICD's which have been received, regardless of reproduction quality. The ICD Log shall be formatted as agreed to by the involved Centers, but it typically shall contain identification numbers, titles, and change information for each ICD or IRN listed. The ICDL shall serve as a current and continuous record of those Apollo inter-Center ICD's and IRN's having program approval. Subsequent to initial issue, the ICD Log shall be issued monthly.
- (b) Special reports, such as a listing of all IRN's against an ICD, of ICD's identified against a mission or hardware item, or of ICD's developed under the cognizance of a particular inter-Center panel, shall be provided on an "as needed" or "on call" basis by each involved Center on APO.

6.4.4 DISTRIBUTION OF REPOSITORY DOCUMENTS

All documents produced by or available from the Repository shall be distributed in accordance with lists provided by each Center. Copies of ICD's or IRN's, in addition to that authorized by the distribution lists, shall be supplied upon special request. Doubtful "need-to-know" instances shall be referred for resolution to the designated representatives at each Center or the ICD Repository Manager.

6.4.5 MODIFICATIONS

The Repository Manager, after coordination and approval by each involved Center's management, shall be authorized to modify Repository operations that impact a Center's activity. Operation of the Repository which is internal in nature and has no impact on inter-Center activity shall be modified at the discretion of the Repository Manager.

7.0 RECISSION

Apollo Inter-Center Interface Control and Repository Operations CM-001-001-1A, dated September, 19, 1966.

APPENDIX .1

INSTRUCTIONS FOR PREPARING THE
ICD LOG AND REPOSITORY INPUT FORM
(MSFC FORM 2053, REV. APRIL 1968)

Appendix 1

GENERAL

This instruction details the method by which a panel prepares the Log and Repository Input Form (MSFC Form 2053, Rev. April 1968). This form shall be used to report information required in the accounting of ICD's and IRN's flowing to the Repository and to provide Electronic Data Processing (EDP) of information contained in the Apollo Interface Control Document Log (ICDL). A copy of the input form is shown in Figure 1.

SCOPE

This instruction applies to Apollo inter-Center Interface Panels responsible for the preparation, technical approval, release and revision of Interface Control Documents.

PROCEDURES

The Center Panel/Subpanel having custodial responsibility for the applicable ICD/IRN is responsible for preparation, authentication and transmission of the form with the related reproducible ICD document to the applicable Program Office. A properly prepared and authenticated input form will be transmitted with each new or revised ICD, and for the other actions listed below.

NOTE: The Input Form must be completed in accordance with these instructions to provide for correct Electronic Data Processing (EDP). As an example, blocks improperly left blank in the Input Form will cause blanks to appear in the IC DL, superseding any positive information reported on the prior input form.

OBTAINING MSFC FORM 2053

Forms are available through normal MSFC Forms Request procedures: Headquarters Supply, Room G30, Building 4200, MSFC.

USE OF MSFC FORM 2053

Instructions for use of MSFC Form 2053 are as follows:

- (a) To submit a released ICD: Fill out a complete Form except for the "DEL" block (1) and CCBD numbers, Block 13. (Note: Block 13 is completed by the CCB.)
- (b) To delete an ICD: Enter an "X" in the "DEL" block and complete the entries for the "DS" block (2), "ICD NUMBER" block (3), "REV" block (4), "DOCUMENT TITLE" block (8), "EFFECTIVITY" block (9), "ORIGINATING AGENCY/ACTIVITY" block (14), and "SUBMITTED BY" block (15) of the input form.

Note: The information in these blocks must be exactly as it appears in the ICDL.

- (c) To report a correction to the ICDL: For errors other than an incorrect document number, fill out a complete card except for the "DEL" block showing the correct information.
- (d) To correct a document number: Submit an Input Form in accordance with paragraph (b) above to delete the incorrect ICD from the ICDL, and submit an additional Input Form for the correct entry.

Note: This will require IRN corrections if IRN's are outstanding against the document.

Entries shall be made on ICDL and Repository Input Forms as follows:

BLOCK

- | | | |
|---|---------------------------|---|
| 1 | <u>DEL (Delete)</u> | Enter an "X" to indicate deletion, otherwise leave blank. |
| 2 | <u>DS (Document Size)</u> | Enter the document size, letters, 8 x 10 1/2 sheets, etc., shall be treated as "A" size documents. |
| 3 | <u>ICD NUMBER</u> | Enter the complete ICD number. |
| 4 | <u>REV (Revision)</u> | Enter the ICD revision letter. If there is no revision, enter a dash (-). |
| 5 | <u>ACTUAL RELEASE</u> | Enter the date on which the ICD is being released for reproduction and distribution. The actual release date is the date the ICD is released by the CCB to the Repository. The ICD with the input form showing the actual release date shall be forwarded to the Repository (R-P&VE-VSD). |
| 6 | <u>ORGANIZATION CODE</u> | Enter the code of the panel or subpanel responsible for the ICD. (See Figure 2 for panel codes.) |
| 7 | <u>LEVEL</u> | Enter the letter "A" to indicate inter-Center level. |

Appendix 1

8	<u>TITLE</u>	Enter the ICD title. Authorized abbreviations may be used. Do not exceed 40 digits.
9	<u>EFFECTIVITY</u>	Enter the effectivity(s) applicable to the ICD.
10	<u>PROGRAM CODE</u>	Enter the notation "Apollo"
11	<u>IRN INCORPORATED</u>	Enter the IRN number(s) incorporated in the latest revision of the ICD. This entry will cause the IRN(s) to be removed from the ICDL.
12	<u>FORM 2053-1</u>	For Repository use only.
13	<u>CCBD NUMBERS</u>	Leave blank (this block is reserved for program use. The Configuration Control Board Directive Numbers are recorded by the CCB Secretary when the CCB action on the ICD is released by the CCB to the Repository).
14	<u>PREPARING AGENCY/ ACTIVITY</u>	On the line in the lower right areas of the block, enter the office symbol or contractor symbol of the agency or activity preparing the ICD. Identify the NASA Center where the input form was prepared by entering an "X" in the appropriate box.
15	<u>SIGNATURE</u>	Panel Representative that has maintenance responsibility.

INTERFACE CONTROL DOCUMENT LOG AND REPOSITORY INPUT FORM

FRONT SIDE OF INPUT FORM

INTERFACE CONTROL DOCUMENT LOG AND REPOSITORY INPUT FORM

DEL	DS	ICD NUMBER	REV	5. RELEASE DATE	6. ORGAN CODE	LEVEL
2.	3.		4.	MO DA YR		7.
DOCUMENT TITLE (NOT TO EXCEED 40 SPACES)						
EFFECTIVITY					10. PROG. CODE	
1. IRN'S INCORPORATED					12. FORM(S) 2053-1 ATTACHED <input type="checkbox"/>	
3. CCBD NUMBER(S)		KSC	MSC	MSFC		
ORIGINATING AGENCY/ACTIVITY			SUBMITTED BY:			
KSC	MSC	MSFC	15. SIGNATURE			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE			

MSFC - Form 2053 (Rev April 1968)

SEE REVERSE SIDE OF CARD FOR ABBREVIATIONS AND DISTRIBUTION

REVERSE SIDE OF INPUT FORM

ABBREVIATIONS	DISTRIBUTION
DEL - Delete	WHITE - Copy for repository log
DS - Document Size	BLUE - Co-chairman's copy
CCBD - Configuration Control Board Directive	YELLOW - Co-chairman's copy
ICD - Interface Control Document	GREEN - Repository copy
IRN - Interface Revision Notice	PINK - Originator
REV - Revision	
Forward White, Green and Pink copies to: George C. Marshall Space Flight Center Huntsville, Alabama 35812 Attn: R-P&VE-VSD	

Figure 1

The abbreviation codes for Apollo Inter-Center Interface panels and subpanels are as follows:

<u>CODE</u>	<u>PANEL/SUBPANEL</u>
LO	LAUNCH OPERATIONS PANEL
EI	ELECTRICAL PANEL
IC	INSTRUMENTATION AND COMMUNICATIONS
MI	MECHANICAL PANEL
LO39	LAUNCH COMPLEX 39 SUBPANEL
LO47	LAUNCH COMPLEX 34/37 SUBPANEL
LOEL	ELECTRICAL SUBPANEL
LOFC	FACILITIES SUBPANEL
LOIA	INDUSTRIAL AREA SUBPANEL

APPENDIX 2

INSTRUCTIONS FOR PROCESSING AN

ICD, REVISED ICD, AND IRN

Appendix 2

GENERAL

The Apollo inter-Center Interface Panels are responsible for the identification and development of inter-Center ICD's. Subsequent to the development of and technical approval of an ICD, there is the requirement to have the ICD reviewed and either approved for program implementation or disapproved. This instruction details the method by which a Panel prepares an ICD, revised ICD, or IRN for submittal to the appropriate Center Apollo Office for their review and action.

SCOPE

This instruction applies to the Apollo inter-Center Interface Panels and encompasses all ICD's, revised ICD's or IRN's agreed to by the Panels.

PROCEDURE

The Panel Co-Chairman representing the ICD originating Center shall prepare an ICD decal as prescribed by Figure 1 of this Appendix; place this decal on sheet one or the cover sheet of the ICD and prepare an input form as described in Appendix 1. When Panel Co-Chairman/Senior Members have agreed to the interface details included in the ICD, they shall affix a date and their signature in the appropriate block on the decal.

The effectivity sheet (Figure 2) shall be utilized to specify ICD effectivities. The effectivities shall apply only to major end items identified by the interfaces. (i.e., LV to SC effectivities shall not include LC or other effectivities unless definitely involved in the interface). The effectivity sheet shall be included in the ICD as the first sheet following the cover of the effectivity information or placed on the ICD drawings as appropriate.

The change and revision record sheet (Figure 3) shall be utilized to list all revisions incorporated into an ICD and shall be the page following the effectivity sheet or included on the ICD drawings.

When technical agreements have been reached and the ICD displays concurrence signatures, the ICD will be submitted to respective Center Apollo Program Office for processing in accordance with Center procedures.

APOLLO ICD DECAL

D			
C			
B			
A			
ORIG			
SYM	NAME MSC	DATE	NAME KSC
			NAME MSFC
APPROVAL			
REPOSITORY: THE GEORGE C. MARSHALL SPACE FLIGHT CENTER HUNTSVILLE, ALABAMA NATIONAL AERONAUTICS AND SPACE ADMINISTRATION			
PREPARED FOR:			PANEL
THIS DOCUMENT SHALL NOT BE USED FOR MANUFACTURING, PROCUREMENT OF HARDWARE, INSPECTION OF MANUFACTURED ITEMS OR ASSEMBLY BUT SHALL GOVERN PERTINENT DESIGN DOCUMENTATION (CLASS I & II DRAWINGS, ETC.). REVISIONS TO THIS DOCUMENT OR THE PROPERLY IDENTIFIED PERTINENT DESIGN DOCUMENTATION CAN ONLY BE MADE WITH APPROVAL OF THE RESPONSIBLE INTERFACE AUTHORITY.			
APOLLO INTER-CENTER INTERFACE CONTROL DOCUMENT			

MSFC - Form 1916 (Rev July 1964)

Figure 1

ICD EFFECTIVITY SHEET

ICD EFFECTIVITY SHEET	
PAGE _____ OF _____	
PROGRAM _____	ICD NO. _____
	EFFECTIVITY
LV	
SC	
LC	
OTHER	

Figure 2

CHANGE/REVISION RECORD

CHANGE/ REVISION	DATE	DESCRIPTION	SHEET	
			REVISION	ADDED

Figure 3

Appendix 2

It is each Center's responsibility to maintain status of ICD's submitted for Program Office action.

It is expected action will be taken on each submitted ICD, by applicable Center Apollo Program Offices, within fifteen (15) working days of receipt of a properly submitted ICD. Should a Panel receive no indication of action by Center Offices after the fifteen working days have transpired, it is incumbent upon the submitting Panel to follow up.

IRN's shall be prepared in accordance with Appendix 3, and will follow the same procedures as an ICD. However, a cover sheet or input form is not required.

APPENDIX 3

INSTRUCTIONS FOR PREPARING AN
INTERFACE REVISION NOTICE (IRN)

Appendix 3

- GENERAL The standard form shown in Figure 1 of this Appendix shall be utilized as page 1 of the IRN (MSFC Form No. 2105, revised March 1968).
- IRN page 2 and subsequent shall utilize the standard form of Figure 2 (MSFC Form 2105-1) where additional sheets are required.
- SCOPE This instruction applies to the Apollo inter-Center Interface Panels.
- PROCEDURE The following instructions shall be followed in completing each numbered block of the IRN form of Figure 1:
- (1) Enter the complete ICD number and revision, if applicable, of the ICD affected by the Interface Revision Notice.
 - (2) Enter the Internal Tracking Number.
 - (3) Enter the IRN Number, e.g., R1, R2.
 - (4) Enter the total number of sheets of this IRN.
 - (5) Enter the Panel name affected by the change.
 - (6) Enter the name or title of the activity or Panel initiating the request for the IRN.
 - (7) Enter the notation "Apollo".
 - (8) Enter the level of documentation ("A" for inter-Center.)
 - (9) Enter the title of the affected ICD exactly as it appears in the ICDL. Additional title information should follow in italics.
 - (10) Enter the effectivity of the change described by the IRN as follows:
 - (a) LV - The serial numbers of the Launch Vehicles affected by the change (i.e., SA-503 thru SA-510, SA-204, 206, 208, etc.).
 - (b) SC - the serial numbers of the applicable spacecraft components affected by the change (i.e., Boiler Plates - BP-9A, BP-13, etc.; CSM Block II - CSM-101, CSM-102, etc.; Lunar Modules - LM-1, LM-2, etc.; Adapters - 10, 11, etc.; LES - SC-101, SC-102, etc.).
 - (c) LC - the Launch Complex and Applicable Components, if required, which will be affected by the change (i.e., Firing Room - FR-1, FR-2, FR-3; Mobile Launcher - ML-1, ML-2,

INTERFACE REVISION NOTICE

AFFECTED ICD				IRN						
1. NO.		REV.		2. TRACKING IDENTIFIER		3. NO.		4. SHEET 1 OF		
7. PROGRAM CODE		8. LEVEL						5. PANEL AFFECTED		
9. TITLE								6. INITIATED BY		
				10. THIS IRN EFFECTIVITY						
11. REASON FOR CHANGE				LV						
				SC						
				LC						
				OTHER						
CHANGE ICD EFFECTIVITY		12. TO				13. FROM				
14. IRN NO		15. NEW IRN EFFECTIVITY				16. PREVIOUS IRN EFFECTIVITY				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> 17. DESCRIPTION OF CHANGE </div> <div style="width: 45%;"> 18. PREPARED BY 19. APPROVED BY 20. ORGANIZATION 21. DATE </div> </div>										
22. CONCURR.	SIGNATURE & ORGN.		REV	DATE	SIGNATURE & ORGN.		REV	DATE	SIGNATURE & ORGN.	
23. SIGN.		KSC APPROVAL		DATE	MSC APPROVAL		DATE	MSFC APPROVAL		
CCBD NO.										

MSFC - Form 2105 (Rev March 1968)

Figure 1

INTERFACE REVISION NOTICE CONTINUATION SHEET

LEV	AFFECTED ICD	REV	IRN NO.	IRN REV	SHEET
					_____ OF _____
DESCRIPTION:					

NSIC - Form 2105-1

Figure 2

ML-3; VAB Hi-Bay - VHB-1, VHB-2, etc;
 Pad - Pad A, Pad B; LVGSE - SA-501, SA-502, SA-503, etc.; LC 34, LC 37B, LC 39).

In event LV, SC or LC are not applicable, and the "other" block does not provide sufficient space, line through LV, SC or LC and enter the desired effectivities.

- (11) Enter a brief, concise reason (justification) why the change is necessary and reference initiating direction.
- (12) If this IRN is to be used to change effectivity of the ICD, enter the new ICD effectivity in Block 12. Enter the old ICD effectivity in Block 13. If this IRN does not change the effectivity of the ICD, mark Block 12 with "NC" (No Change).
- (14, 15 & 16) If this IRN is to be used to change the effectivity of any previous IRN(s) - List each IRN Number affected in Block 14, the new IRN effectivities in Block 15 and the old IRN effectivities in Block 16. (No changes or reissuance will be made on an approved IRN. An approved IRN may be cancelled, superseded, or its effectivity revised by a subsequent IRN).
- (17) Enter the exact change being requested. If sketches or drawings accompany the IRN, make the appropriate reference in this block. Continuation sheets may be used if required.
- (18, 19, 20 & 21) Enter in the appropriate block, the name of the individual preparing the IRN, approving the IRN, and the name of the preparing activity and date prepared.
- (22) Enter the date of any required concurrence signature(s) in this block, including concurrence in revisions made during the panel coordination cycle. These signatures are pertinent to internal panel operations.
- (23) The designated panel representative from each affected Center enters signature and the dates in the appropriate blocks. The CCB Secretary for the Center responsible for ICD maintenance enters the CCB numbers and dates from all involved Centers in the appropriate blocks prior to reproduction and distribution.